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10/675,536	09/30/2003	Robert Lee Cline	PO-7925/MD-02-52	6084
157 7590 11/28/2007 BAYER MATERIAL SCIENCE LLC 100 BAYER ROAD PITTSBURGH, PA 15205			EXAMINER SAYALA, CHHAYA D	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/675,536  
Filing Date: September 30, 2003  
Appellant(s): CLINE ET AL.

**MAILED**  
**NOV 28 2007**  
**GROUP 1700**

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N. Denise Brown  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 8/23/2007 appealing from the Office action mailed 3/28/2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

20040016276	WYNNK et al.	1-2004
4804403	MOORE	2-1989

## **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-11, 13-17, 19-23, 25-29, 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wynnk et al (US Pub 2004/0016276) combined with Moore (US Patent 4804403).

Claims 1, 7, 13, 19, 25 and 31 exemplify the 6 embodiments claimed herein for encapsulating urea with polyurethane, the latter being formed by reacting polyisocyanate with an isocyanate reactive, namely polyether polyol. Briefly:

Claim 1 is to a method *applying* polyisocyanate (P) to fertilizer particles (FP), *mixing* the filler (F) with the result and *adding* the isocyanate reactive component (IR, the polyol).

Claim 7's method *applies* the P to FP, *adds* the IR, then *mixes* the F with the mixture of FP, P and IR.

Claim 13 is drawn to a method wherein FP is *mixed* with the F, *applying* the P to the mixture, *adding* IR to the mixture.

Claim 19 is to a process which includes *applying* IR to FP, *mixing* F with the coated FP, *adding* the P.

Claim 25 is drawn to *applying* the IR to the FP, *adding* P, *mixing* F

Claim 31 is drawn to *mixing* FP with the F, *applying* the IR to the mixture, *adding* a P to the result.

Wynnk et al teach providing a controlled release particle, which comprises a particulate filler, and a urethane coating. The inert filler is defined at claim 13, See also claim 20, 22 and 31. The amount of filler is at claims 48 and 49, and is shown as 1-50% of the coating and 3-30% of the coating (see instant claim 1, claims 3-5, 7, 9-11, etc.). The method of coating is shown at paragraphs [0071] to [0072] of '276. The reference states that a first stream of polyol, a second stream of isocyanate, independently can be used on the fertilizer particle or vice versa. A third stream comprising the filler or one of the polyol or isocyanate with the filler is then applied. The third stream can be applied between the first and second streams or it can be applied as the first or last stream.

The size of the filler is given at claim 17. Furthermore, the reference states:

Alternatively mixtures of some or all components in the coating can be combined and applied in one or more streams. The mixing of coating components and order of introducing these streams into the system can be in any possible combination. These streams can be mixed in a nozzle before entering into the drum, or separately sprayed into the drum and mixed before contact with the fertilizer, or mixed on the surface of the fertilizer. Multiple application of these streams may be applied to obtain desired release and mechanical properties.

Note that the limitations of claims 1, 7, 13, 19, 25 and 31 are shown by Wynnk et al. at paragraphs [0045], [0047] –[0048], and optimizing within the ranges shown cannot be said to be inventive unless applicant can show an unobvious result. The fillers disclosed show that most are indeed insoluble in water and in fact, inert. See paragraphs [0041]-[0044]. Paragraphs [0047-0048] teach polyether polyols with a molecular weight “in the range of from about 200” and a filler particle size of less than about 100 microns. The amount of filler is given at claims 47-49 also; the amount of polyisocyanate with respect to the polyol is given at paragraph [0055].

Moore, used here as a reinforcing teaching to the primary reference teaches using diluent fillers that may be applied by blending with polyols and then applying this to a fertilizer particle. See col. 8, lines 22 +.

When the fertilizers are dry powders, they can be applied between the base coat and sealing layer between the sealer layer and water-insoluble coating, and between the water-insoluble coatings with each layer of powder applied prior to the application of polyol. The patent specifically states:

Application is made by adding the dry powder diluent to a mobile mass of coated particles to which additional layers of polyfunctional isocyanates and organic polyols are added to react according to the instant invention.

It is preferable to limit the amount of diluent filler used to no more than two times the weight of the polyol used in forming the granule, and the amount more preferably is limited to a weight equal to that of the polyol to obtain excellent attrition resistance.

Several different diluent fillers may be employed in several sequential layers of a single particle or mass of particles. Thus, it was found possible to carry diluents of inerts, herbicides, and nutrients in a given particle or particles.

Based on the above disclosures, even though the patents do not teach the various permutations and combinations of applying the filler to a polyurethane coated fertilizer granulate, in well enunciated steps to recite method claims of the type herein, it would have been obvious to one of ordinary skill in the art, based on the prior art of record, that in following the references, every embodiment instantly claimed was already known in the art at the time the invention was made or clearly suggested by the above 2 references. Also based on such prior art, to make further modifications to optimize the various alternatives would have been obvious because the normal desire of scientists or artisans to improve upon what is already known provides the motivation to determine where in a disclosed set of parameters is the optimum combination of conditions to obtain the best possible product.

#### **(10) Response to Argument**

The claims herein describe a number of embodiments that include several (6) ways of applying, mixing and adding the polyisocyanate, polyol, fertilizer particle and filler to obtain a urethane coating. The various claims/methods establish that there is no criticality in the methods recited herein, as to the various steps of applying, mixing and adding.

On page 7 of the Brief, appellant states (at the 2<sup>nd</sup> paragraph) that Wynnk et al, "optionally" add an organic additive, and explains that the organic additive is intermixed with the urethane. The claims do not exclude the organic additive and furthermore, as pointed out by the applicant, the addition is only optional.

At paragraph 3, appellant states that the Wynnk et al. reference "clearly discloses that separate layers are not formed by the process therein", it would not be obvious to combine Wynnk et al. with the Moore reference. Although the logic of this statement is not clearly understood, as pointed out in the rejection, col. 8, lines 22 + (reproduced below) provides, like the reference of Wynnk et al., a number of ways of introducing the filler in the preparation of the polyurethane coating by mixing the filler with the polyol and applying to the fertilizer or by adding it to the polyisocyanate, again showing that there is no criticality as to the steps or order of mixing, applying or adding the various elements: fertilizer, isocyanate, polyol and filler. Moore, col. 8, line 22+:

It was found that the diluent fillers may be applied by blending with the polyols and applying the combination as a liquid dispersion. Where the diluents are finely divided dry powders, it was found that they may be applied between the base coat and the sealing layer, between the sealing layer and the water-insoluble coating, and between the water-insoluble coatings with each layer of powder applied prior to the application of polyol. Application is made by adding the dry powder diluent to a mobile mass of coated particles to which additional layers of polyfunctional isocyanates and organic polyols are added to react according to the instant invention.

It is preferable to limit the amount of diluent filler used to no more than two times the weight of the polyol used in forming the granule, and the amount more preferably is limited to a weight equal to that of the polyol to obtain excellent attrition resistance.



Several different diluent fillers may be employed in several sequential layers of a single particle or mass of particles. Thus, it was found possible to carry diluents of inerts, herbicides, and nutrients in a given particle or particles.

As for the discussion of the sealing layer at paragraph 4 on page 7 (Brief), or the "different or separate layers" around the fertilizer, the claims do not exclude adding more than a single layer of coating or a sealing layer.

At page 8, second paragraph, appellant states the Moore reference may result in additional layers. While such a disclosure could not be found at col. 8, lines 22-35, such additional layers of coating are not excluded by the claims. Because Moore teaches that the filler can be applied between the base coat and the sealing layer or between different sealings, appellant states that one of ordinary skill in the art would not combine Wynnk et al. with Moore.

While Wynnk et al. teach a number of variations of introducing fillers in the preparation of polyurethane coatings for fertilizers; Moore suggests the same by the disclosure at col. 8. Both references are drawn to preparing polyurethane encapsulated fertilizer particles. Both references teach a number of embodiments/variations in the application of fillers to such coatings. Both establish like the instant specification and claims, that there is no criticality in the method of application of fillers, polyol and polyisocyanate to the fertilizer. Therefore, the combination of references reinforces the position that it was known and/or suggested that the filler, fertilizer, isocyanate and polyol could be applied, added, mixed in any number of ways as shown by these references to produce a useful polyisocyanate coating for a fertilizer particle.

At page 8, last paragraph, appellant's position that Wynnk et al. do not teach the polyols of the claims, with its specific claimed characteristics, is simply not true. The reference describes polyols that include the limitations of the instantly claimed polyols (see the rejection itself). Contrary to appellant's conclusion that Wynnk et al's preferred polyol being castor oil is fatal to the combination of references used in the rejection (see page 9, first and second full paragraphs), this is only the preferred embodiment and it is well established that all of the reference teachings should be considered and not just the preferred embodiments. The same applies to appellant's pointing to the fact that Wynnk et al's examples only show applying the filler to the polyol and coating the fertilizer particle. These are only the examples, while the reference itself teaches that there is no criticality in the way the filler is applied; thus rendering the variations of the instant claims obvious. It has been well established that all of the disclosure must be considered not just the specific examples, *In re Uhlig*, 153 USPQ 460. The 'non-preferred' as well as the 'preferred' portion of a reference is pertinent for what it teaches to one skilled in the art. *In re Meinhardt*, 157 USPQ 270 (CCPA 1968).

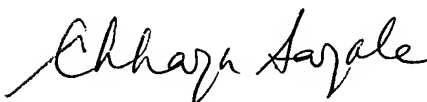
Appellant's last full paragraph (page 9, Brief) addresses the fact that the castor oil of Wynnk et al. is not an appropriate polyol for the instant invention. Again, it is being reiterated that while castor oil is not the only polyol disclosed by that reference, and it is the preferred embodiment of Wynnk et al., Wynnk et al. do disclose the polyols claimed herein (as pointed out in the above rejection) as being useful in forming the encapsulated polyurethane of the claims.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



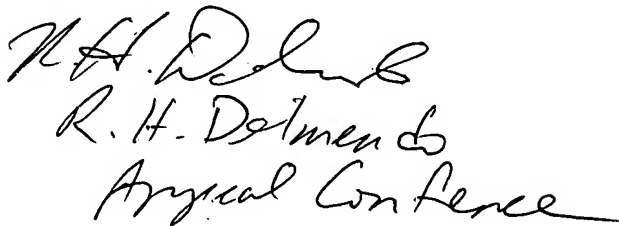
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